UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,719	01/05/2006	Hideaki Yamamoto	B588-596 (25815.609)	1517

26272 7590 07/19/2011

COWAN LIEBOWITZ & LATMAN P.C.
JOHN J TORRENTE
1133 AVE OF THE AMERICAS
NEW YORK, NY 10036

EXAMINER	
ARCIERO, ADAM A	
ART UNIT	**PAPER NUMBER**
1727	

MAIL DATE	DELIVERY MODE
07/19/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,719	YAMAMOTO, HIDEAKI	
	Examiner	Art Unit	
	ADAM A. ARCIERO	1727	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 December 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-14 and 19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-14 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

FUEL CELL DEVICE CAPABLE OF OUTPUTTING A SIGNAL REPRESENTING A RESIDUAL CAPACITY, METHOD FOR OUTPUTTING A SIGNLA REPRESENTING A RESIDUAL CAPACITY OF A FUEL CELL DEVICE, AND ELECTRONIC DEVICE CAPABLE OF DETECTING A RESIDUAL CAPACITY OF A FUEL CELL DEVICE

Examiner Adam Arciero S.N. 10/563,719 Art Unit 1727 July 14, 2011

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 04, 2010 has been entered along with the supplemental response filed on December 09 2010. Claims 11-14 and 19 are currently pending. Claims 1-10 and 15-18 are canceled. Claim 19 is newly added. Claims 11, 14 and 19 have been amended.

2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in a prior Office Action.

Claim Rejections - 35 USC § 112

3. The claim rejections under 35 U.S.C. 112, first paragraph on claims 11-14 for containing new matter are withdrawn, because Applicant has amended independent claim 11.

Claim Rejections - 35 USC § 103

4. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Ito et al., Kanazawa and Fujitani et al. on claims 11-13 are withdrawn, because Applicant has amended independent claim 11.

5. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Ito et al., Kanazawa, Fujitani et al. and Dickman et al. on claim 14 is withdrawn, because Applicant has amended independent claim 11.

6. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (JP 2003-139298) in view of Kanazawa (JP 59-197546) and Tsutsumi et al. (US 5,366,820).

As to Claim 11, Ito et al. disclose an electronic device capable of detecting a residual capacity of a fuel cell device (Abstract). Said fuel cell device comprises a first tank section comprising a first hydrogen storage material and a second tank comprising a second hydrogen storage material, said tanks comprising respective pressure sensors (pressure detecting units) and flow rate control parts (Abstract). Said first and second hydrogen storage materials have different characteristics from each other (Abstract). Ito et al. further disclose a residual amount detecting unit for detecting a residual hydrogen amount by using the pressure measurements and by controlling the flow rates of the hydrogen from both the first hydrogen storage unit and the second hydrogen storage unit (Abstract). Ito et al. disclose a calculation unit (control unit, outputting unit, comparing unit) which is capable of calculating and controlling the residual amount of hydrogen and outputting information so said fuel supply can be controlled (Abstract).

The phrases “capable of," "for accommodating," "for generating," "for detecting," "for comparing" and “for outputting” does not further limit the structure of the claim. The phrases state capable functions of the electronic device and associated components. See MPEP 2114, “while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function.” *In re Schreiber,* 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). Ito et al. does not specifically disclose wherein the fuel cell system comprises a tank for accommodating at least two kinds of hydrogen storage alloys, wherein one alloy has a higher desorbed hydrogen pressure than the second alloy, and further wherein the control unit operated with the electric power supplied from the fuel cell.

However, Kanazawa teaches of a fuel tank comprising a mixture of two different kinds of hydrogen storage alloys (Abstract). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the system of Ito et al. with one tank comprising a mixture of two different kinds of hydrogen storage materials, because Kanazawa teaches that such a setup makes it possible to simply perform the indication of a hydrogen residual amount by simple pressure measurements (Abstract). Furthermore, the courts have held that using one piece rather than multiple pieces to perform the same function is within the skill of one ordinary skilled in the art *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965). The combination of Ito et al. and Kanazawa do not specifically disclose wherein one hydrogen storage alloy has a higher desorbed hydrogen pressure than the second hydrogen storage alloy.

However, Tsutsumi et al. teaches of a fuel cell system comprising a hydrogen absorbing apparatus containing two different hydrogen absorbing alloys, wherein a first hydrogen

absorbing alloy has a higher hydrogen gas absorbing/desorbing equilibrium pressure than that of a second hydrogen storage alloy (Abstract and Embodiments 5-8, col. 15, line 63 to col. 16, line 16). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the tank comprising a mixture of hydrogen storage alloys with one alloy having a higher hydrogen gas absorbing/desorbing equilibrium pressure than a second alloy, because Tsutsumi et al. teaches that the supply of hydrogen gas is streamlined and the appropriate time for supplying the hydrogen gas is easily checked (col. 18, lines 1-6).

As to Claim 12, Ito et al. does not specifically disclose wherein the fuel cell system comprises a tank for accommodating at least two kinds of hydrogen storage alloys, and wherein the control unit operated with the electric power supplied from the fuel cell.

However, Kanazawa teaches of a fuel tank comprising a mixture of two different kinds of hydrogen storage alloys (Abstract). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the system of Ito et al. with one tank comprising a mixture of two different kinds of hydrogen storage materials, because Kanazawa teaches that such a setup makes it possible to simply perform the indication of a hydrogen residual amount by simple pressure measurements (Abstract). Furthermore, the courts have held that using one piece rather than multiple pieces to perform the same function is within the skill of one ordinary skilled in the art *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

Furthermore, Tsutsumi et al. teaches of mixing different hydrogen storage alloys in different mixing ratios (Abstract and Embodiments 5-8, col. 15, line 63 to col. 16, line 16). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the tank comprising a mixture of hydrogen storage alloys with one alloy having a higher

hydrogen gas absorbing/desorbing equilibrium pressure than a second alloy, because Tsutsumi et al. teaches that the supply of hydrogen gas is streamlined and the appropriate time for supplying the hydrogen gas is easily checked (col. 18, lines 1-6).

As to Claim 13, Ito et al. disclose two separate tanks for accommodating two different types of hydrogen storage alloys. Ito et al. does not disclose one discrete tank with two separate spaces to accommodate the two different hydrogen storage alloys separately. However, the courts have held that using one piece rather than multiple pieces to perform the same function is within the skill of one ordinary skilled in the art *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

As to Claim 19, Ito et al. discloses the comparing unit of claim 11, which is capable of comparing the pressure of the hydrogen detected by the pressure detecting unit with a predetermined shutdown pressure, which is smaller than the second desorbed hydrogen pressure and larger than zero, and further wherein the output unit is capable of outputting a third signal if the pressure of the hydrogen detected by the pressure detecting unit is less than the second desorbed hydrogen pressure and larger than the predetermined shutdown pressure, and capable of outputting a fourth signal if the pressure of the hydrogen detected by the pressure detecting unit is less than the predetermined shutdown pressure. The phrases “capable of," "for detecting," "for comparing" and “for outputting” does not further limit the structure of the claim. The phrases state capable functions of the electronic device and associated components. See MPEP 2114, “while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function.” *In re Schreiber,* 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir.

1997).

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (JP 2003-139298) in view of Kanazawa (JP 59-197546) and Tsutsumi et al. (US 5,366,820) as applied to claims 11-13 above, and further in view of Dickman et al. (US 2001/0049038 A1).

As to Claim 14, the combination of Ito et al., Kanazawa and Tsutsumi et al. does not specifically disclose a display.

However, Dickman et al. teach a control system for a fuel cell system, said control system comprises a user interface having a display (pg. 7, [0064]). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the system of Ito et al. and Kanazawa with a user interface and display, because Dickman et al. teach that such a display may show current values measured by sensors of the system, enabling a user to monitor and/or interact with the operations (pg. 7, [0064]).

Response to Arguments

7. Applicant's arguments with respect to claims 11-14 and 19 have been considered but are moot in view of the new ground(s) of rejection as necessitated by Applicant's amendments to the claims.

Applicant's principle arguments are:

a) Ito does not disclose or suggest a tank section accommodating two different hydrogen storage alloys, comparing pressures that are detected, or detecting a residual hydrogen amount based on the comparison results (claims 1 and 12).

In response to Applicant's arguments, please consider the following comments:

a) In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The phrases "capable of," "for accommodating," "for generating," "for detecting," "for comparing" and "for outputting" does not further limit the structure of the claim. The phrases state capable functions of the electronic device and associated components. See MPEP 2114, "while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function." *In re Schreiber,* 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). Ito, Kanazawa and Tsutsumi disclose the structural elements of the claims and they are structurally capable of performing the functions of the claimed invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADAM A. ARCIERO whose telephone number is (571)270-5116. The examiner can normally be reached on Monday to Friday 7am to 4pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Barbara Gilliam can be reached on 571-272-1330. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ADAM A ARCIERO/
Examiner, Art Unit 1727

/Barbara L. Gilliam/

Supervisory Patent Examiner, Art Unit 1727